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Taking SPARROW to the Web:

Decision Support for Water-Quality Research and Resource Management

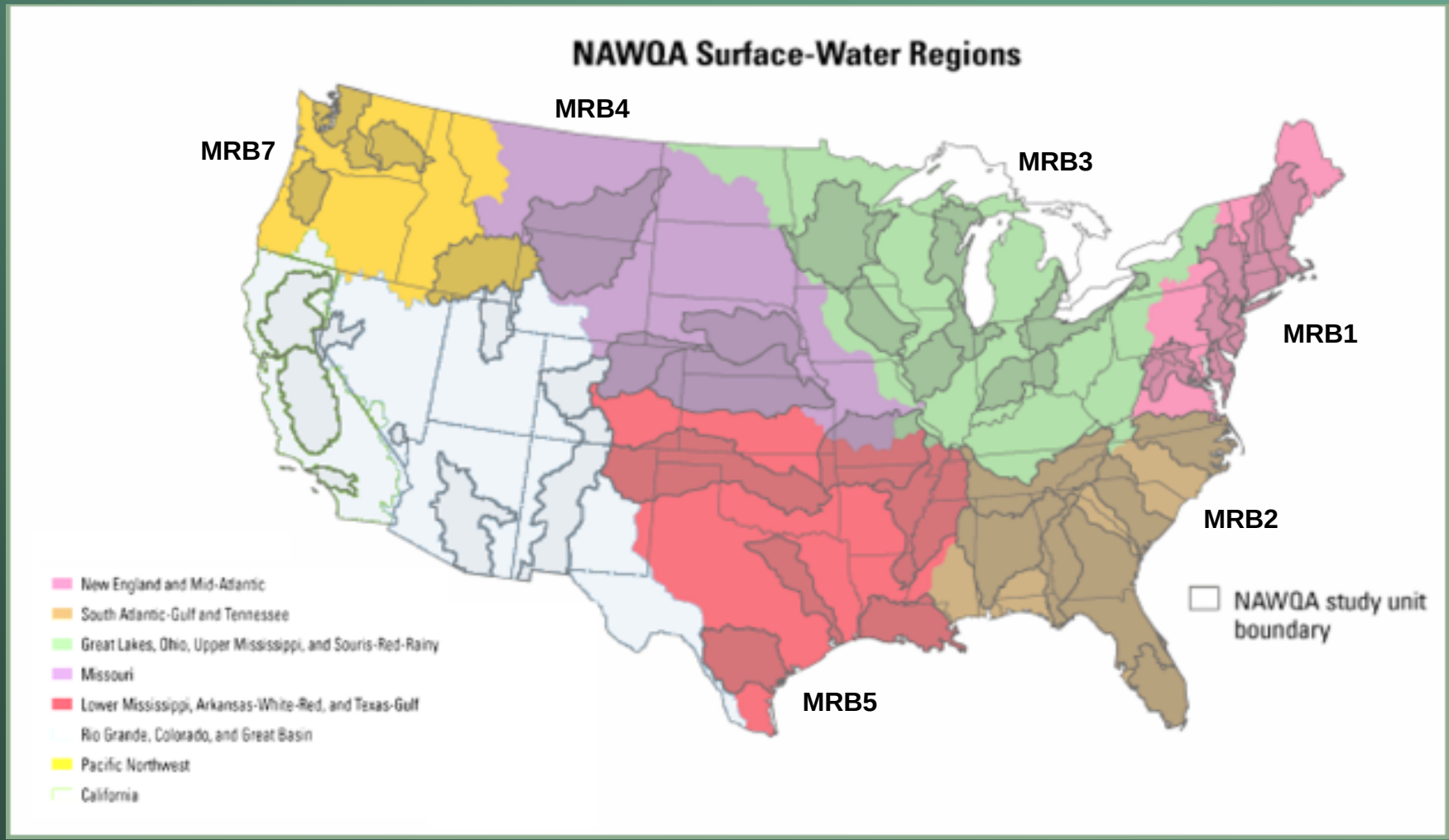
...Decision Support Now!

Eric Everman & Nate Booth

Resource Support from NAWQA Surface Water Status and Trends Program

U.S. Department of the Interior
U.S. Geological Survey

Current SPARROW Efforts: 6 MRBs + National Model



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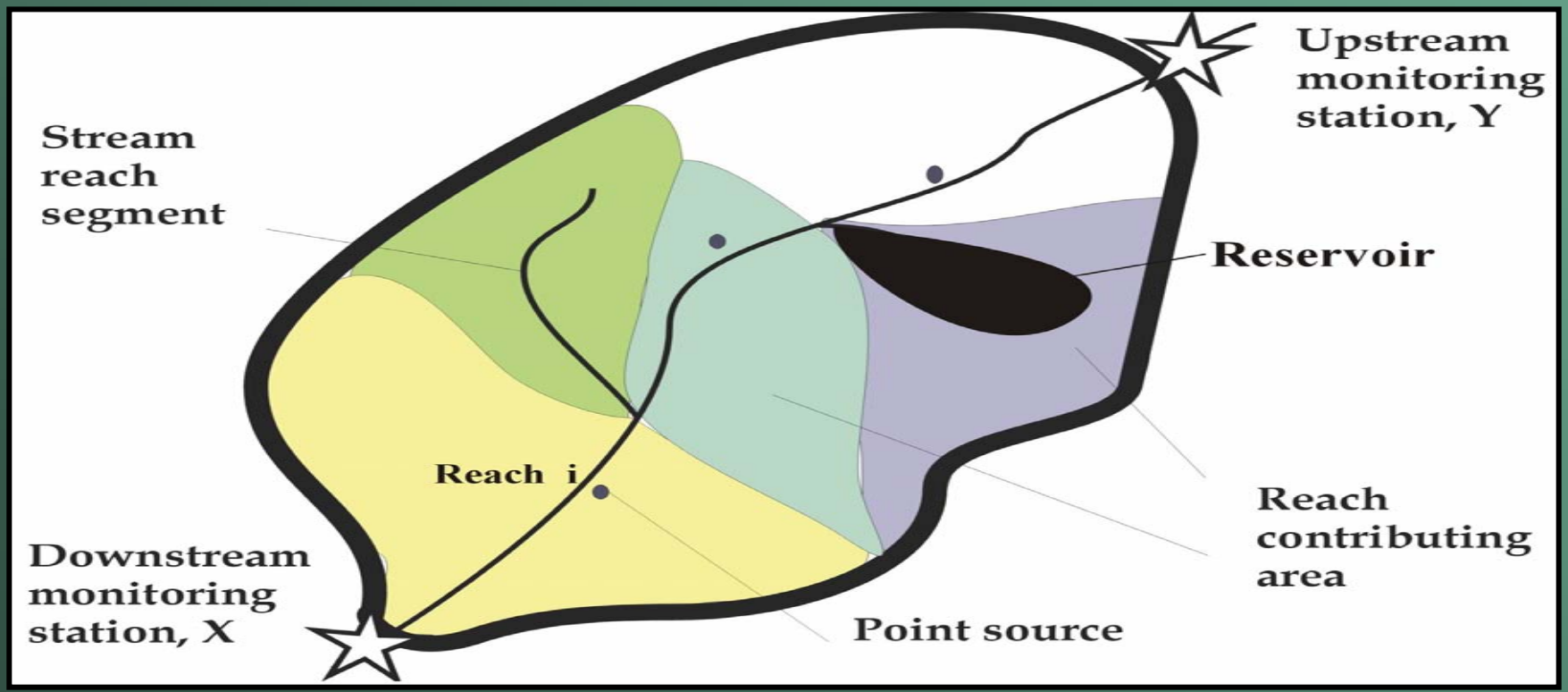
Slide courtesy of Steve Preston

Regression Model

Load leaving the reach	=	Upstream Load X instream decay	+	Incremental Reach Load X Delivery X Decay



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SPARROW DSS: Web-based Decision Support

- Online - No requirements other than a web browser
- View and investigate models
- Run reports from models
- Test “What if” scenarios

Decision Support:
- User Investigation
- Scenario Testing

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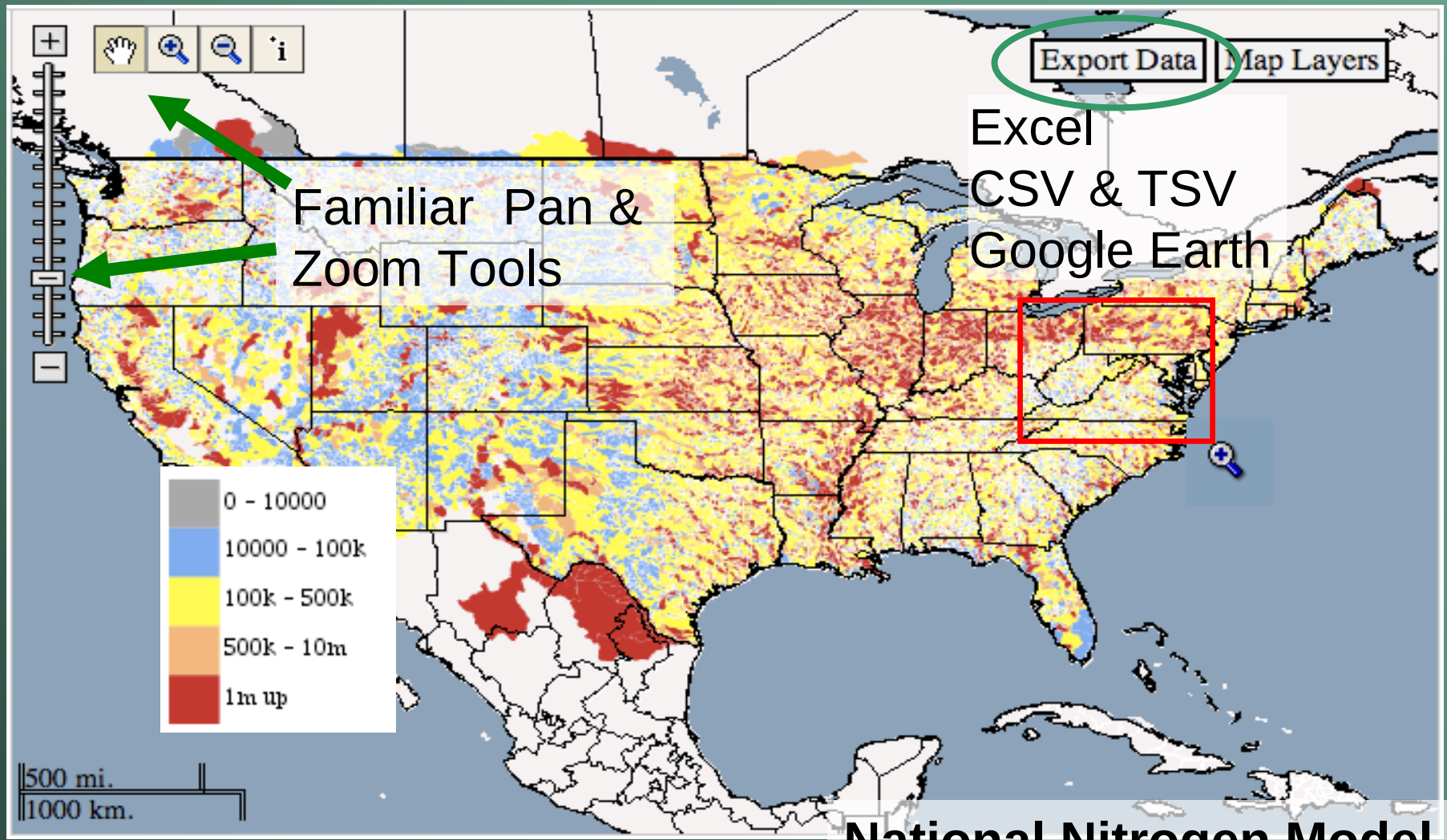
UI - Similar to Google Maps



National Nitrogen Model

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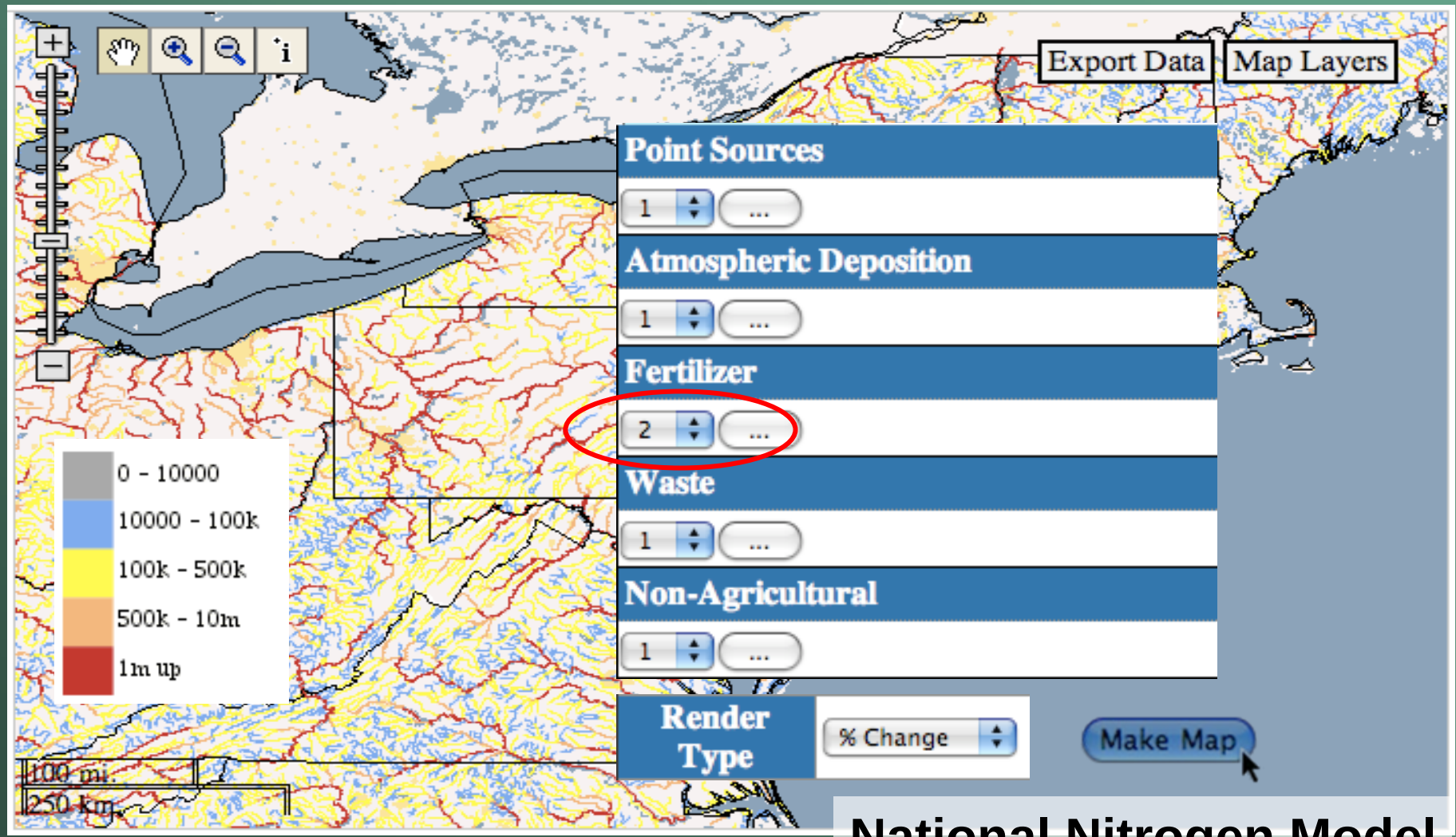
Easy Scenario Testing



National Nitrogen Model

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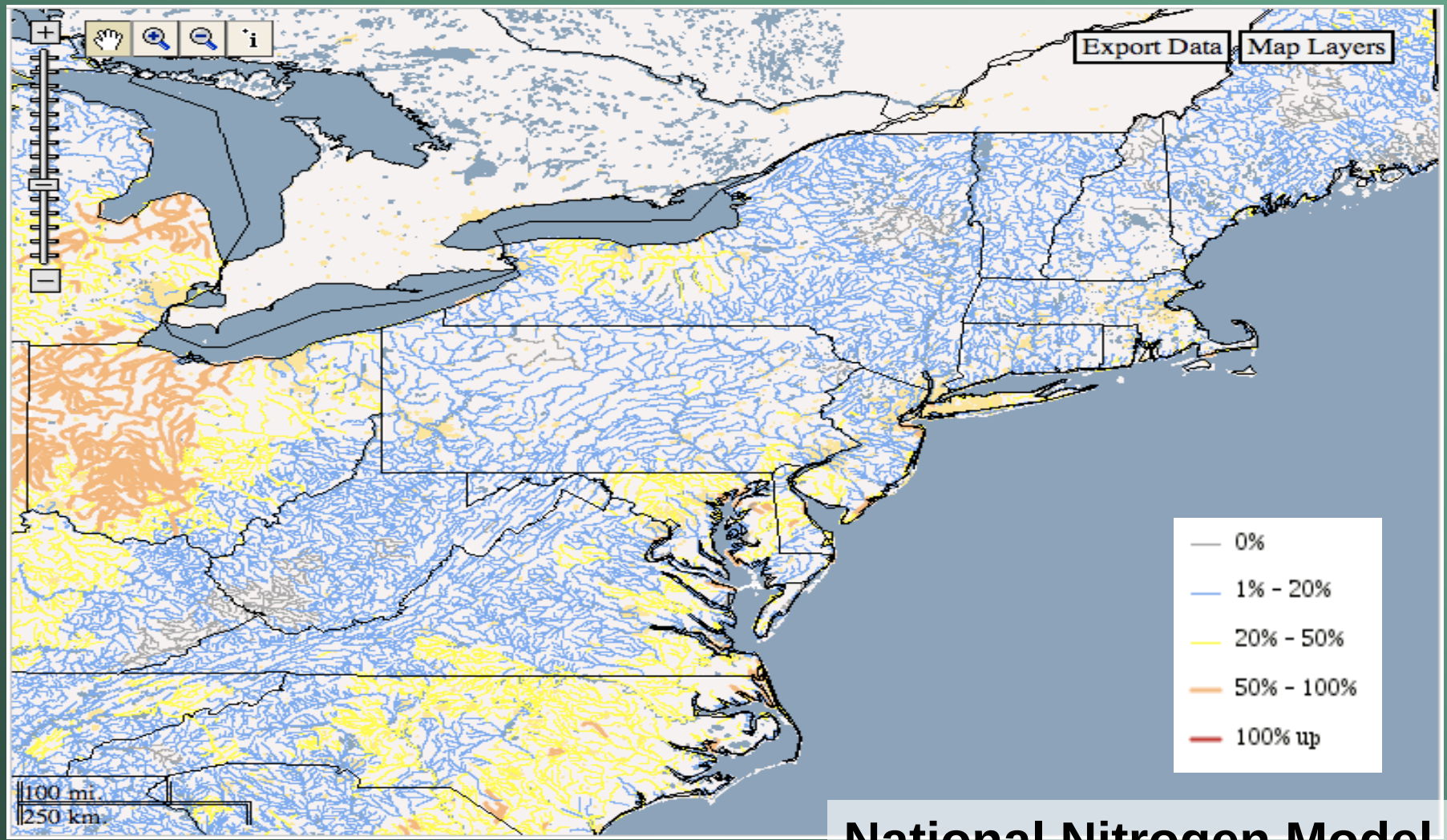
Instant Results



National Nitrogen Model

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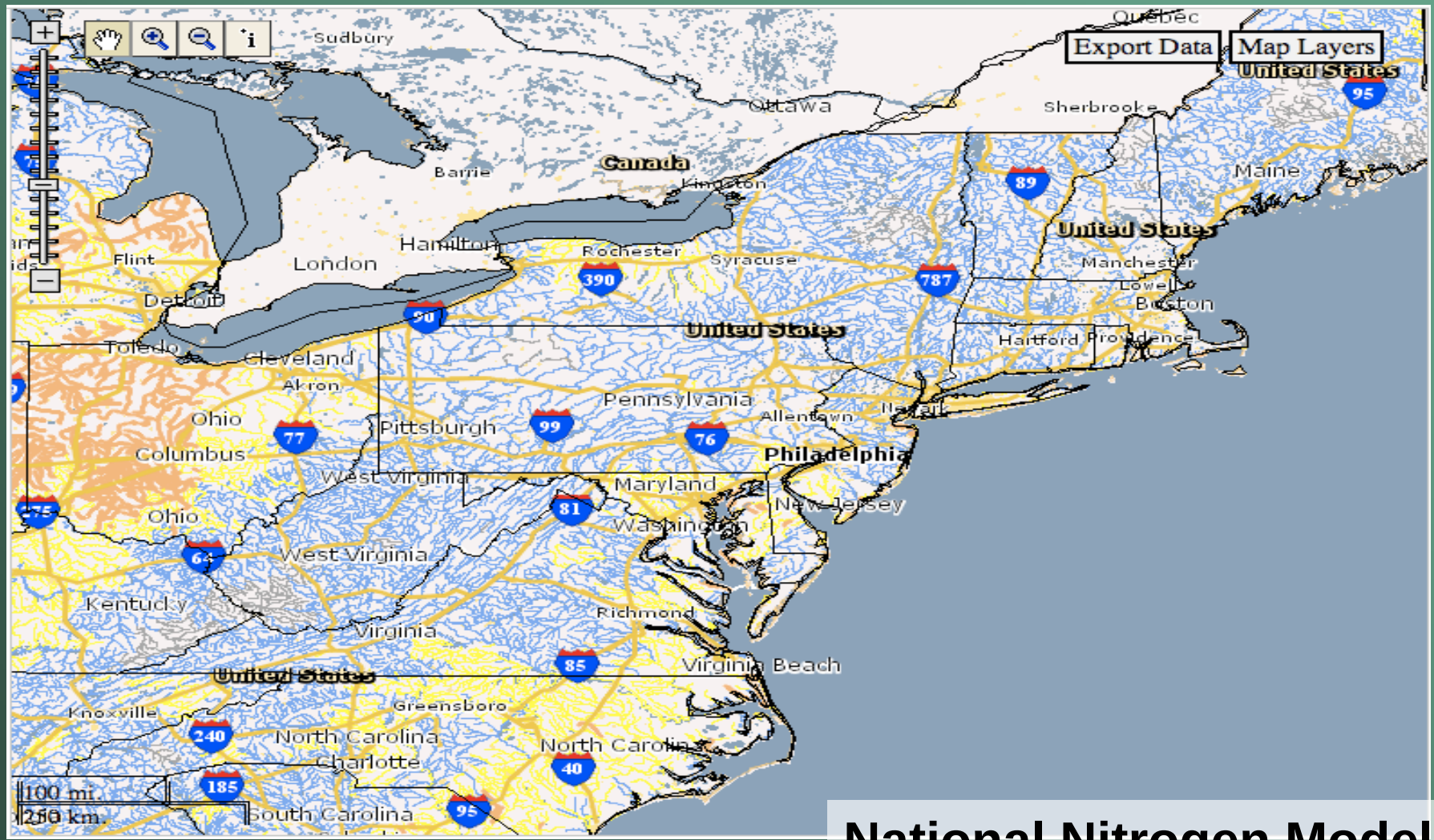
Map Layers from National Map



National Nitrogen Model

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Features: Current and Planned

- Multiple Map Types
  - load by source, incremental load, % change, yield
  - Flux to a waterbody, basin ranking
- Save, exchange, and manipulate model scenarios (prediction context)
- 305b/303d reporting & TMDL Attainment Plans
- Common repository to store any SPARROW model that meets minimum requirements

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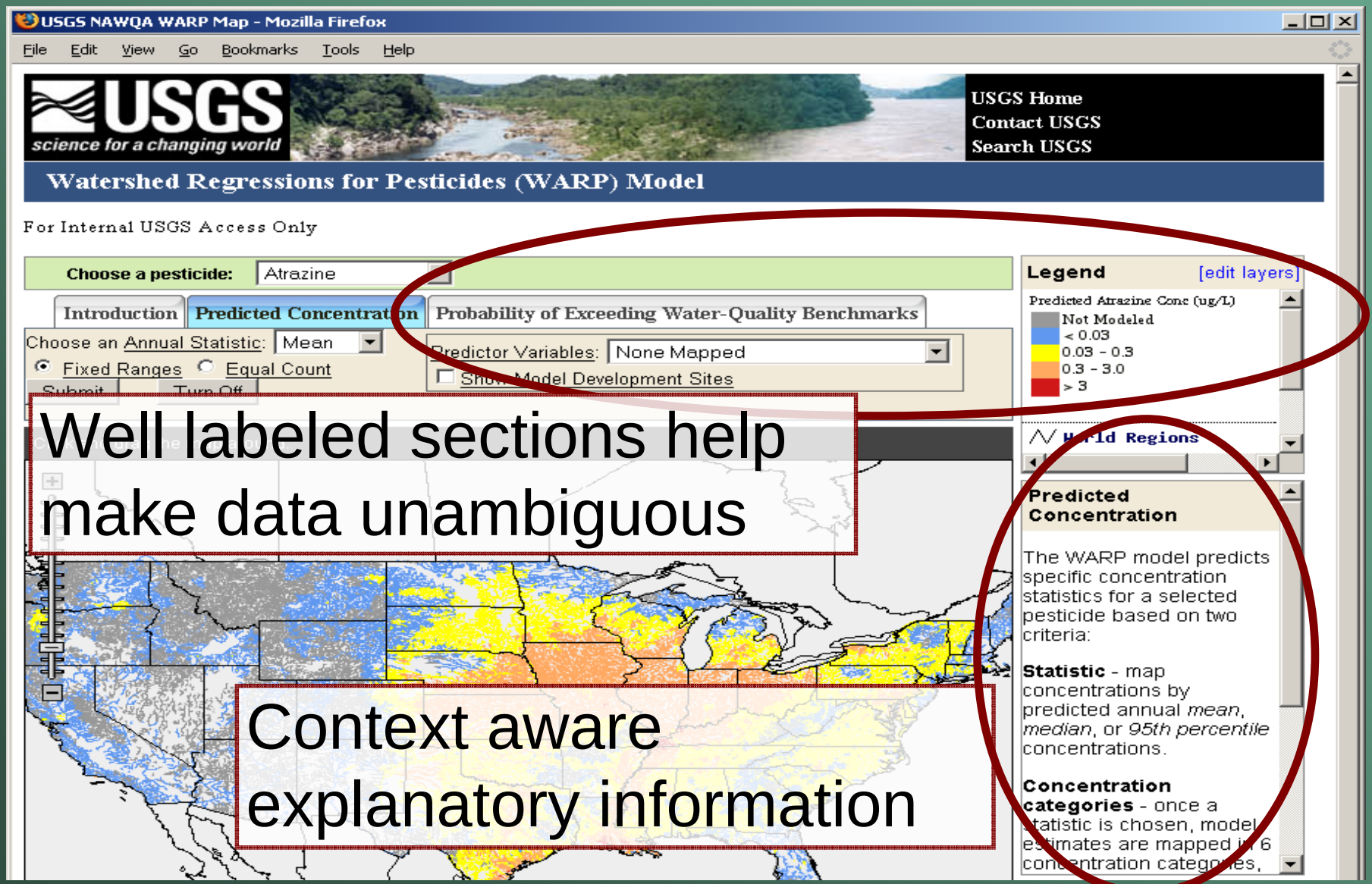
Decision Support for a Wide Audience



Advantages of Web-Based Decision Suppport

- Reach more audiences and levels of sophistication
- Remove the need for special software after the model is completed
- Permanent, always available archive of model in usable form
- Useful for modelers as well

Bottom Line: More mileage from the model

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The Real Value: The Model

- The report gives results
- The model allows investigation

- The report is a snapshot
- The model is likely capable of predictions for scenarios beyond the scope of the report

The model offers decision support

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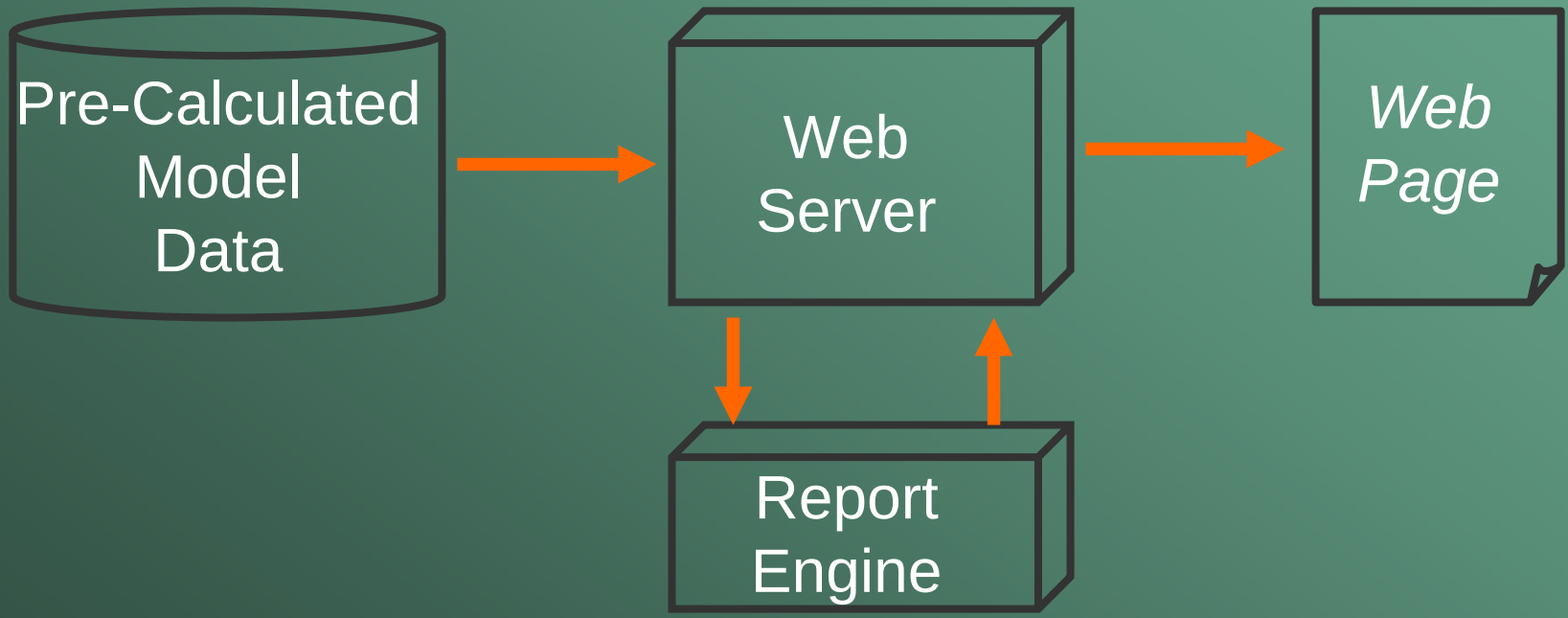
Typical Model Reporting System



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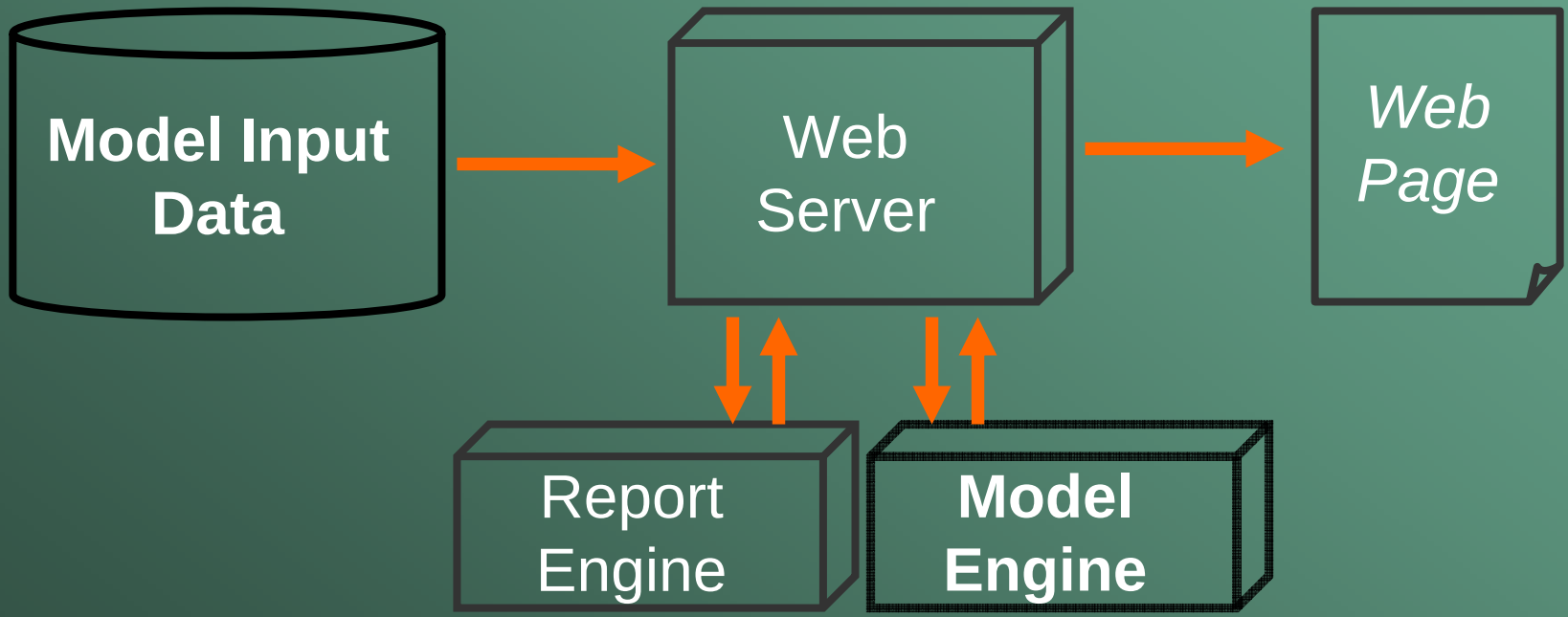
New Paradigm:
Web Based Decision Support



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New Paradigm Project Flow

- **Build Support and funding for the project**
- **Do the project**
  - **Gather Data**
  - **Build Model**

  } Begin Building the DSS Tool

  - **Publish report and Launch online DSS**

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Plan for Decision Support Up Front

- Value in Launching the DSS and report together
- DSS developers can work with modelers while they are still on the project
- Incompatibilities *will* be uncovered and can be addressed early

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SPARROW DSS Project Team

- Nate Booth
- Eric Everman
- John Hollister
- I-Lin Kuo

Funded by the NAWQA Surface Water Status and Trends

Collaboration from the entire national SPARROW team

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Questions?

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